

Appl. No. 10/637,191
Amdt. dated 3/21/06
Reply to Office action of November 25, 2005

CLAIM AMENDMENTS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (currently amended). A semiconductor laser, comprising:

a vertical resonator formed by reflectors;

a photon-emitting active layer disposed between said reflectors;

at least one current diaphragm for laterally circumscribing a current flowing through said photon-emitting active layer;
and

mode-selective regions extending in a vertical direction within said vertical resonator and laterally ~~delimit~~ delimiting said vertical resonator, said mode-selective regions being implantation regions extending into said photon-emitting active layer.

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Claim 2 (original). The semiconductor laser according to claim 1, further comprising a mesa and one of said reflectors is formed in said mesa.

Claim 3 (original). The semiconductor laser according to claim 2, wherein said mesa has a diameter of $> 10 \mu\text{m}$.

Claim 4 (original). The semiconductor laser according to claim 1, wherein said current diaphragm is formed from an oxide.

Claim 5 (original). The semiconductor laser according to claim 1, wherein said current diaphragm defines a current aperture having a given diameter of $> 3 \mu\text{m}$.

Claim 6 (original). The semiconductor laser according to claim 5, wherein said current diaphragm has a diameter of $> 4 \mu\text{m}$.

Claim 7 (original). The semiconductor laser according to claim 5, wherein said mode-selective regions define an inner opening being larger than said current aperture.

Claim 8 (previously presented). The semiconductor laser according to claim 1, wherein said mode-selective regions

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have an electrical conductivity less than an electrical conductivity of said vertical resonator along a resonator axis.

Claim 9 (canceled).

Claim 10 (previously presented). The semiconductor laser according to claim 9, wherein said vertical resonator has an edge area and said mode-selective regions extend in said edge area and a surrounding region of said edge area of said vertical resonator.

Claim 11 (original). The semiconductor laser according to claim 1, wherein said current diaphragm is at least two current diaphragms.

Claim 12 (previously presented). The semiconductor laser according to claim 1, wherein the semiconductor laser has a multilayer structure and said mode-selective regions are formed within said multilayer structure.

Claim 13 (new). A semiconductor laser, comprising:

a substrate;

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a vertical resonator formed by reflectors;

a photon-emitting active layer disposed between said
reflectors;

at least one current diaphragm for laterally circumscribing a
current flowing through said photon-emitting active layer;
and

mode-selective regions extending in a vertical direction
within said vertical resonator and laterally delimiting said
vertical resonator, said mode-selective regions being
implantation regions extending into said substrate.